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<u>L9</u>	L8 and (information adj job)	82	<u>L9</u>
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<u>L5</u>	6662194.pn.	2	<u>L5</u>
<u>L4</u>	L3 and (search near event)	1	<u>L4</u>
<u>L3</u>	L2 and inquiry	13	<u>L3</u>
<u>L2</u>	L1 and (messag\$)	79	<u>L2</u>
<u>L1</u>	(job\$ near opening) and (job near search\$)	125	<u>L1</u>

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<u>L6</u>	(6345260 or 6567784).pn.	4	<u>L6</u>
<u>L5</u>	6662194.pn.	2	<u>L5</u>
<u>L4</u>	L3 and (search near event)	1	<u>L4</u>
<u>L3</u>	L2 and inquiry	13	<u>L3</u>
<u>L2</u>	L1 and (messag\$)	79	<u>L2</u>
<u>L1</u>	(job\$ near opening) and (job near search\$)	125	<u>L1</u>

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L10: Entry 1 of 4

File: USPT

Dec 12, 2006

DOCUMENT-IDENTIFIER: US 7148991 B2

TITLE: Job scheduling system for print processing

PRIOR-PUBLICATION:

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DATE

US 20040008363 A1

January 15, 2004

Brief Summary Text (52):

According to a first aspect of the present invention, there is provided a job processing system comprising a terminal equipment for issuing a job request by handling a plurality of documents as one job, and a job scheduling device which sequentially processes jobs by storing the jobs, received from the terminal equipment through a network, in a queue and sending a job execution section a processing request relating to a document specified by the job stored in the queue, the terminal equipment comprising: attribute information adding means for adding information which specifies a job output method to a job request as attribute information of the job, and the job scheduling device comprising: attribute information setting means for acquiring attribute information included in the received job and sets the attribute information to information which specifies a job and a document; a queue for storing, as a job, a group of items of the information which specify a job and a document; and output result control means which, upon reference to the information items which specify a job and a document with respect to the job stored in the queue, controls the processing request issued to the job execution section in such a way that a specified number of copies of the job are output using the information which specifies a job output method.

Brief Summary Text (53):

According to a second aspect of the present invention, there is provided a job processing system comprising a terminal equipment for issuing a job request by handling a plurality of documents as one job, and a job scheduling device which sequentially processes jobs by storing the jobs, received from the terminal equipment through a network, in a queue and sending a job execution section a processing request relating to a document specified by the job stored in the queue, the terminal equipment comprising: attribute information adding means for adding information relating to the number of copies of the job and information relating to a job output result to the job request as job attribute information, and the job scheduling device comprising: attribute information setting means for acquiring attribute information included in the received job and sets the attribute information to information which specifies a job and a document; a queue for storing, as a job, a group of items of the information for specifying a job and a document; and output result control means which, upon reference to the information for specifying a job and a document with respect to the job stored in the queue, controls the processing request issued to the job execution section in such a way that a specified number of copies of the job are only output in a collated manner if collation processing is specified in the information relating to a job output result using the information which specifies a job and a document, or in such a way that a specified number of copies of the job are only output in an uncollated manner if uncollation processing is specified in the information relating to the job output result using the information which specifies a job and a document.

Brief Summary Text (54):

According to a third aspect of the present invention, there is provided a job processing system comprising a terminal equipment for issuing a processing request by handling a plurality of documents as one job, a job execution section for printing the documents, and a job scheduling device which accepts a document input from the terminal equipment through a network and issues a processing request relating to that document to the job execution section, the terminal equipment comprising: control information specifying means for specifying a processing start wait for a leading document among the plurality of documents, and the job scheduling device comprising: preparation means for preparing information which specifies a received document; queuing means for storing the prepared information which specifies the document by associating the information on a job-by-job basis; control information setting means which, if a processing start wait is specified for the leading document among a plurality of received documents, sets the processing start wait to information for specifying this leading document; and control state setting means which, if the processing start wait is set to information which specifies the leading document of the job stored in the queuing means, renders that job in a processing start wait state, and wherein the job scheduling device sequentially retrieves jobs stored in the queuing means when the job execution section becomes enabled to accept processing, issues a processing request for a corresponding document when there is information specifying a document to which a processing request can be issued, and when a job is placed in the processing start wait state, prevents the issue of processing requests with respect to a document for that job and documents for subsequent jobs until that job is released from the processing start wait state by a user's instruction or a timeout.

Brief Summary Text (55):

According to a fourth aspect of the present invention, there is provided a job processing system comprising a terminal equipment for issuing a processing request by handling a plurality of documents as one job, a job execution section for printing the documents, and a job scheduling device which accepts a document input from the terminal equipment through a network and issues a processing request relating to that document to the job execution section, the terminal equipment comprising: control information specifying means for specifying a processing completion wait for a leading document among the plurality of documents, and the job scheduling device comprising: preparation means for preparing information which specifies a received document; queuing means for storing the prepared information which specifies the document by associating the information on a job-by-job basis; control information setting means which, if a processing completion wait is specified for the leading document among a plurality of received documents, sets the processing completion wait to information for specifying this leading document; and control state setting means which, if the processing completion wait is set to information which specifies the leading document of the job stored in the queuing means, renders that job in a processing completion wait state, and wherein the job scheduling device sequentially retrieves jobs stored in the queuing means when the job execution section becomes enabled to accept processing, issues a processing request for a corresponding document when there is information specifying a document to which a processing request can be issued, and when a job is placed in the processing completion wait state, prevents the issue of processing requests with respect to a document for that job and documents for subsequent jobs until that job is released from the processing completion wait state by a user's instruction or a timeout.

Brief Summary Text (56):

According to a fifth aspect of the present invention, there is provided a job processing system comprising a terminal equipment for issuing a processing request by handling a plurality of documents as one job, a job execution section for printing the documents, and a job scheduling device which accepts a document input

from the terminal equipment through a network and issues a processing request relating to that document to the job execution section, the terminal equipment comprising: control information setting means for specifying a password input wait for a leading document among the plurality of documents, and the job scheduling device comprising: preparation means for preparing information which specifies a received document; queuing means for storing the information which specifies the document by associating the information on a job-by-job basis; control information setting means which, if a password input wait is set for the leading document among a plurality of received documents, sets the password input wait to information which specifies that leading document; and control state setting means which, if the password input wait state is set to information which specifies the leading document of the job stored in the queuing means, renders that job in a password input wait state, wherein the job scheduling device sequentially retrieves jobs stored in the queuing means when the job execution section becomes enabled to accept processing, issues a processing request for a corresponding document when there is information specifying a document to which a processing request can be issued, and when a job is placed in the password input wait state, prevents the issue of processing requests with respect to a document of that job and documents of subsequent jobs until that job is released from the password input wait state by a user's instruction or a timeout.

Description Paragraph (57):

In compliance with an instruction input from a user, the terminal 11 adds various types of attribute values, which include those relating to the number of job outputs and information relating to a job output result, to the job request as job attribute information of the job.

Description Paragraph (74):

The job scheduling section 15 transfers the job delivered from the request control section 14 to a queue management section 17, and queues corresponding to the job execution section 13 and queues necessary for scheduling are managed using the queue management section 17. Scheduling is carried out allowing for an assignment and processing conditions of the job execution section 13, and a print processing request is issued to the job execution section 13 by transferring a job stored in the queue management section 17 to the job execution section 13. A queue object of the job transferred from the request control section 14 is stored in a printer queue 22 if the job is a non-acceptance completion type sequential processing job; is stored in a spool queue 18 if the job is an acceptance completion type sequential processing job; and is stored in a hold queue 19 if the job is an unscheduled job. If another document follows that job request, information is set in the document information section of that document upon reference to job information of another job having the same job identifier, and that document is added to a queue object with the same job identifier using the queue management section 17.

Description Paragraph (76):

A collation control unit 15a refers to job information and document information of the jobs stored in the printer queue 22 of the queue management section 17. If the collation identifier (Collate Flag) is set to TRUE (collation), a processing request issued to the job execution section 13 is controlled in such a way that the job is output in a specified number in a collated manner using the job information and the document information. If the collation identifier is set to FALSE (uncollation), the processing request issued to the job execution section 13 is controlled in such a way that the job is output in a specified number in an uncollated manner using the job information and the document information. Upon receipt of an acknowledgement representing that the job execution section 13 can accept processing from the job execution section 13, the job scheduling section 15 sequentially fetches jobs from the leading end of the printer queue 22, and issues a document processing request to the job execution section 13 via the job execution section control section 16, with the use of the collation control unit 15a, in such

a way that the job is output in a collated or uncollated manner as specified by a user. The job scheduling section 15 then receives a status acknowledgement of the document, to which the processing request was issued, from the job execution section 13 via the job execution section control section 16, and executes the scheduling of another job.

Description Paragraph (82):

Upon receipt of a job request (step S101), the request control section 14 judges whether or not a job identifier (ID) is set to the job request (step S102). If the job identifier is not set to that job request, that job is judged as the leading job. The job request control section 14 sets a job identifier common to a plurality of job requests from this leading job request to the final job request, and prepares a queue object of the job relating these job requests. Thus, a job information section is set. Simultaneously, the request control section 14 acquires attribute information included in the received job request and sets this attribute information as job information (step S103). Subsequently, queue objects of the document of that job request are prepared, and a document information section is set. Concurrently, the attribute information included in the received job request is acquired, and this attribute information is set as document information (step S104).

Description Paragraph (83):

On the other hand, when the job identifier is set in the received job request, a series of job requests which have already been received are judged as one job, and the job information is acquired based on the job identifier (step S105). It is judged from the attribute information of that job request whether or not this document is the final document (step S106). If the document is the final document, the number of documents is written into the job information of the job identifier of this final document (step S107).

Description Paragraph (95):

Upon receipt of an acknowledgement of the completion of the processing of a job identifier XX (Job ID) from the job execution section 13 via the job execution section control section 16 (step S301), the job scheduling section 15 acquires document information of the document which was subjected to processing completion (step S303) as well as job information of the job identifier XX (step S302). On the assumption that a processing completion count (Complete Count) is +1 (step S304), it is judged whether or not the processing completion count is equal to a job copy number count (Job Copy Count) (step S305). If these two values are not identical with each other, the processing will return to step S301. On the other hand, if these two values are equal to each other, the processing of that document will be terminated (step S306), and it is judged whether or not the final document identifier is TRUE (step S307). If the final document identifier is not TRUE, the processing will return to step S301. However, if it is TRUE, the processing of the job identifier XX will be terminated.

Description Paragraph (122):

Information relating to the control wait of a job and the message information can be specified individually or in combination. For example, when a job is output in the form of an OHP film by manually feeding the film, a processing start wait and a processing completion wait are designated. Upon receipt of an acknowledgement of processing start wait, the user inserts paper during the processing of the job is interrupted. Thereafter, upon receipt of an acknowledgement of processing completion wait, the user attaches an ordinary tray to the printer while the printer is in an output wait state after the completion of the job processing.

Description Paragraph (138):

Upon receipt of a document (step S1101), the request control section 14 judges whether or not a job identifier is set to that document (step S1102). If the job identifier is not set to that document, the document is judged as the leading

document. The job request control section 14 sets a job identifier common to a plurality of documents from this leading document to the final document, and prepares a queue object of the job as shown in FIG. 10. Thus, a job information section is set. Simultaneously, the request control section 14 prepares job information in this job information section (step S1103). Subsequently, queue objects of that document are prepared, and a document information section is set. Concurrently, a document information section is prepared in this document information section (step S1104). A newly provided job identifier is sent back to the terminal 11 which sent the document to the request control section (step S1105).

Description Paragraph (161):

Upon receipt of a document delivered from the terminal 11, the request control section 14 accepts this document (step S1201). In addition to the acceptance of a document which was previously described upon reference to the flowchart shown in FIG. 3, the request control section 14 accepts an acknowledgement of enabled processing issued from the job execution section 13. N representing a printer queue number is set to one (step S1202), and the request control section 14 judges whether or not the job execution section 13 is enabled (step S1203). This judgement is made based on the presence or absence of the acknowledgement of enabled processing from the job execution section 13. If the job execution section 13 becomes enabled, and if a job identifier (a job ID) can be obtained from the job information of an Nth job in the printer queue (step S1204), M representing a document number of that job is set to one (step S1205). It is judged whether or not Mth document information of a job having the job identifier can be obtained (step S1206). If the Mth document information is obtainable, it is judged whether or not the document information is in a state of requesting processing (step S1207). If it is not in that state, it is then judged whether or not the document information is waiting for processing (step S1208). If the document information is waiting for processing, a processing request for that document is issued to the job execution section 13, and the document information is placed in a state of requesting processing (step S1209). If the document information is the state of requesting processing in step S1207, or if the document information is not in the state of waiting for processing in step S1208, it is judged whether or not the final document identifier of the document information is set to TRUE (step S1210). If the final document identifier is not set to TRUE, M=M+1 (step S1211). The processing proceeds to step S1206, and the next document will be processed. If the final document identifier is set to TRUE in step S1210, N=N+1 (step S1211). The processing proceeds to step S1203, and the next job will be processed.

Description Paragraph (164):

To begin with, upon receipt of a document delivered from the terminal 11, the request control section 14 accepts this document (step S1301). Subsequently, it is judged whether or not the printer queue includes a job waiting for the initiation of processing (step S1302). If the printer queue does not include any job waiting for processing start, N representing a printer queue number is set to one (step S1303), and it is judged whether or not the job execution section 13 becomes enabled (step S1304). If the job execution section 13 is enabled, and if a job identifier (a job ID) can be obtained from the job information of an Nth job in the printer queue (step S1305), it is judged whether or not a processing start wait is set to the job information of that job before it is checked whether or not the leading document of the job can issue a processing request (step S1306). If the processing start wait is set to the job information of that job, the job is rendered in a processing start wait state (step S1307). No processing request is issued to a document of this job and documents of subsequent jobs until the job is released from this wait state.

Description Paragraph (166):

On the other hand, if the processing start wait was not set to the job information of the job in step S1306, M representing a document number of that job is set to

one (step S1309), and it is judged whether or not Mth document information of a job having the previously mentioned job identifier is obtainable (step S1310). If the Mth document information is obtainable, it is judged whether or not the document information is in a state of requesting processing (step S1311). If it is not in that state, it is then judged whether or not the document information is waiting for processing (step S1312). If the document information is waiting for processing, a processing request for that document is issued to the job execution section 13, and the document information is placed in the state of requesting processing (step S1313). If the document information is the state of requesting processing in step S1311, or if the document information is not in the state of waiting for processing in step S1313, it is judged whether or not the final document identifier of the document information is set to TRUE (step S1314). If the document identifier is not set to TRUE, $M=M+1$ (step S1315). The processing proceeds to step S1310, and the next document will be processed. If the final document identifier is set to TRUE in step S1314, $N=N+1$ (step S1316), the processing proceeds to step S1304, and the next job will be processed.

Description Paragraph (171):

Upon receipt of an acknowledgement of processing completion from the job execution section 13 (step S1402-1), the job scheduling section 15 acquires document information of a document whose processing was completed (step S1402-2), and the document is placed in a processing completed state (step S1402-3). Subsequently, it is judged whether or not the final document identifier of that document information is TRUE (step S1402-4). If the final document identifier is not TRUE, the processing returns to step S1402-1. If the final document identifier is TRUE, that is, if the document whose processing was completed is the final document, the job information of that document is obtained (step S1402-5). Then, it is judged whether or not a processing completion wait is set to the job information (step S1402-6). If the processing completion wait is set to the job information, the job is rendered in a processing completion wait state (step S1402-7). On the other hand, the processing completion wait is not set to the job information, the processing of that job is completed (step S1402-8).

Description Paragraph (172):

In the flowchart shown in FIG. 14, it is judged whether or not the printer queue includes a job waiting for processing completion (step S1403). If the queue does not include any job waiting for processing completion, N representing a printer queue number is set to one (step S1404), and it is judged whether or not the job execution section 13 becomes enabled (step S1405). If the job execution section 13 is enabled, and if a job identifier (a job ID) is obtainable from the job information of an Nth job in the printer queue (step S1406), it is judged whether or not a job identifier of the job waiting for processing is set to the printer queue (step S1407). If the job identifier of the job waiting for processing is set to the printer queue, or if there is a job waiting for the completion of processing in step S1403, the processing returns to step S1401 when the job is released from the processing completion wait state by the user's instruction delivered from the terminal 11 or a timeout (step S1408). If the job identifier of the job waiting for processing is not set to the printer queue in step S1407, it is judged whether or not a processing completion wait is set to the job information of that job (step S1409). If the job completion wait is set to the job information, the job is rendered in a processing completion wait state, and the job identifier of this job waiting for the completion of processing is set to the printer queue (step S1410).

Description Paragraph (173):

On the other hand, if the processing completion wait was not set to the job information of the job in step S1409, or if the job identifier of the job waiting for the completion of processing was set to the printer queue in step S1410, M representing a document number of that job is set to one (step S1411), and it is judged whether or not Mth document information of a job having the previously mentioned job identifier is obtainable (step S1412). If the Mth document

information is not obtainable, the processing will return to step S1401. However, if the Mth document information is obtainable, it is judged whether or not the document information is in a state of requesting processing (step S1413). If it is not in that state, it is then judged whether or not the document information is waiting for processing (step S1414). If the document information is waiting for processing, a processing request for that document is issued to the job execution section 13, and the document information is placed in the state of requesting processing (step S1415).

Description Paragraph (177):

To begin with, upon receipt of a document delivered from the terminal 11, the request control section 14 accepts this document (step S1501). Subsequently, it is judged whether or not the printer queue includes a job waiting for a password input (step S1502). If the printer queue includes a job waiting for a password input, no processing request is issued. On the other hand, if the printer queue does not include any job waiting for a password input, N representing a printer queue number is set to one (step S1503), and it is judged whether or not the job execution section 13 becomes enabled (step S1504). If the job execution section 13 is enabled, and if a job identifier (a job ID) is obtainable from the job information of an Nth job in the printer queue (step S1505), it is judged whether or not a password input wait is set to the job information of that job, before it is checked whether or not the leading document of the job can issue a processing request (step S1506). If the password input wait is set to the job information of that job, the job is rendered in a password input wait state (step S1507). No processing request is issued to a document of this job and documents of subsequent jobs until the job is released from this wait state.

Description Paragraph (179):

On the other hand, if the password input wait is not set to the job information of the job in step S1506, M representing a document number of that job is set to one (step S1509), and it is judged whether or not Mth document information of a job having the previously mentioned job identifier is obtainable (step S1510). If the Mth document information is obtainable, it is judged whether or not the document information is in a state of requesting processing (step S1511). If it is not in that state, it is then judged whether or not the document information is waiting for processing (step S1512). If the document information is waiting for processing, a processing request for that document is issued to the job execution section 13, and the document information is placed in the state of requesting processing (step S1513). If the document information is the state of requesting processing in step S1511, or if the document information is not in the state of waiting for processing in step S1513, it is judged whether or not the final document identifier of the document information is set to TRUE (step S1514). If the document identifier is not set to TRUE, M=M+1 (step S1515). The processing proceeds to step S1510, and the next document will be processed. If the final document identifier is set to TRUE in step S1514, N=N+1 (step S1516), the processing proceeds to step S1504, and the next job will be processed.

Description Paragraph (207):

The job scheduling section 107 is provided with a print document type determination unit 111, an output device selection unit 112, a conversion processing section selection unit 113, and a job search unit 114. In addition to the previously mentioned scheduling function, the job scheduling section 107 searches for each queue in the queue management section 109 during a print processing wait, and carries out the conversion of a print format if there is a job which needs the conversion of a print format.

Description Paragraph (211):

The job search unit 114 searches spool queues and printer queues using a queue management section 109 which will be described later, and judges whether or not there is a job including documents which need the conversion of a print format at

the job execution section 104.

Description Paragraph (235):

Upon receipt of a ready acknowledgement from the conversion section 115-1 or 115-2 via the job execution section control section 108 (step S2201), the job scheduling section 107 searches each queue managed by the queue management section 109 using the job search section 114 and retrieves a job including a document which needs conversion processing carried out in the conversion processing section.

Description Paragraph (236):

Initially, the job search unit 114 sets a count N to one (step S2202), and retrieves a job, including a document which need the conversion of a print format executed by the conversion processing section, from a printer queue N (step S2203).

Description Paragraph (237):

In other words, jobs stored in a queue to be retrieved are sequentially searched, and it is judged whether or not the searched job includes a document which needs the conversion of a print format. For example, when the output device 116-1 is selected with respect to the searched job, it is judged whether or not this job includes a document in a format other than a print format B, because the output device 116-1 can process the print format B. If the output device 116-2 is selected with respect to the searched job, it is judged whether or not the job includes a document in a format other than a print format D, because the output device 116-2 can process a print format D.

Description Paragraph (314):

The queue management section 312d manages a printer queue 312g and a pause queue 312h. The printer queue 312g is provided corresponding to a printer so as to queue job information of jobs waiting for printing. A job assigned to each printer is queued in a corresponding printer queue. In other words, the printer queue 312g is provided corresponding to physical printers included in the job execution section 313. A pause queue 312h queues jobs paused according to a user's instruction. Jobs held in the pause queue 312h are retained in this queue until a resumption instruction is issued by the user. When the user issues the resumption instruction, the job information will be moved to the assigned printer.

Description Paragraph (366):

(1a) the modification of a job status after the movement of job information when the job information is moved from a certain queue to another queue;

Description Paragraph (367):

(1b) the deletion of a job in the order of a master file and job information when the job is deleted;

Description Paragraph (378):

The wait queue q3 queues job information of a job waiting for a password input when the job timed out. The job information retained in the wait queue q3 is retained in this queue until the job is released from a password waiting state by user's input of a password. When the job is released from the password input wait, the job information is moved to the queue where it was originally situated when the timeout occurred

Description Paragraph (379):

The pause queue q4 queues job information of a job which the user instructs to pause, and the job information retained in this pause queue q4 is retained in this queue until the user instructs the resumption of the job. When the user instructs the resumption of the job, the job information is moved to an assigned printer queue.

Description Paragraph (380):

The printer queues q5 and q6 are provided corresponding to printers so as to queue job information of jobs which are waiting for printing. Only job information of a job assigned to each printer is queued in a corresponding printer queue.

Description Paragraph (382):

A processing request is issued with respect to the job information retained in the printer queue q5 or q6 if the printer becomes enabled and if the leading job in the printer queue q5 or q6 includes a processable document. When the print processing of the printer is completed, the job information of that job is moved to the terminate queue q7 or q8.

Description Paragraph (383):

The terminate queues q7 and q8 are provided corresponding to the printers in order to queue job information of printed jobs. Only job information of a job assigned to each printer is queued in a corresponding terminate queue.

Description Paragraph (391):

The job scheduling section 412b which accepted the job information of that job checks whether or not a job hold is specified for that job (step S4208). If the job hold is not specified for that job, the job is queued in the hold queue q2 (step S4209).

Description Paragraph (400):

As shown in FIG. 44, the job information comprises a job ID representing an identification number of a job; docsecNum for use in identifying a one-job multidocument; currentDocNum to which the docsecNum for issuing a print request is set; a status 430a which represents the state of a job; prevQID representing a previously retained queue ID; jobCopyCount representing the number of copies; requestCounter representing how many times a print request for a document is issued to a job execution section; completeCounter representing how many times the processing of a document is completed; abortedCounter representing the number of times a job is aborted during the processing of a document; collateFlag representing whether or not collation is carried out; resumeFlag representing whether or not resumption of the job is carried out; previousStatus representing a previous status; retry representing a retry counter when a job is rejected by the job execution section; complete representing whether or not a document is the final document; convertID representing an ID of a requesting converter; ohPagesComp representing how many pages of a job were output; ohDocPagesComp representing how many pages of a document were output; ohCurJobState representing the current state of a job; ohPrevjobState representing a previous job status; ohJobStateReason representing the reason for a transition of the current job status; ohAssignJEID representing an ID of a printer assigned as a result of the selection of a printer; retryCounter representing the number of retries after recovery; and processingFlag representing whether or not a job is being currently printed.

Description Paragraph (460):

However, if a document other than the final document of the one-job multidocument job is being instructed to print at this time, the requestCounter of that job is set to -1. Upon receipt of an acknowledgement of the termination of the job scheduling device 413 from a manager (not shown) which supervises the job scheduling device 412 and the job execution section 413, a requestCounter set to -1 is searched, and a job corresponding to that requestCounter is aborted. At this time, if the format of another document is being converted, a termination request is issued to the conversion processing section which carries out the conversion of a format. When the conversion processing section received that termination request, the job is aborted.

Description Paragraph (510):

In FIG. 45, the job scheduling section 412b resides in an attribute modification

section 512e which modifies attribute information in response to a request for modifying the attribute information of a job.

Description Paragraph (511):

Upon receipt of the request for modifying the attribute of a job, the attribute modification section 512e checks whether or not the attribute of that job is changeable. If the attribute is changeable, the attribute modification section changes attribute information of the job after having checked whether or not the attribute information should be changed.

Description Paragraph (514):

(2) whether or not the attribute information to be changed is appropriate. If the modification of the attribute information is possible, the attribute information of the job will be changed.

Description Paragraph (516):

(1a) whether or not the job information of a job designated so as to change its attribute is in the hold queue q2;

Description Paragraph (517):

(1b) whether or not the job information of a job designated so as to change its attribute is in the printer queue q5 or q6, and whether or not the job is not currently processed and has never been interrupted in the past; and

Description Paragraph (518):

(1c) whether or not the job information of a job designated so as to change its attribute is present in the pause queue q4, and whether or not the job has never been interrupted in the past.

Description Paragraph (523):

When jobs in a start waiting state (startwaiting), an end waiting state (endwaiting), and a password input waiting (passwordwaiting) are retained in this hold queue q2, the system may be constructed so as not to allow the attribute information of these jobs to be changed in view of the fact that these jobs are in a waiting state. For convenience of explanation, in this embodiment, an explanation will be given of a user-specified nonscheduled job by focusing on this job.

Description Paragraph (529):

However, the jobs whose job information is retained in the pauses queue q4 include a job which was subjected to a pause instruction while being printed. If the attribute information of such a job which was subjected to interruption while being printed is changed, it becomes difficult to obtain a match between the document which has already been printed and the document which will be printed later.

Description Paragraph (531):

In this way, the attribute modification section 512e confirms a queue which retains job information of jobs designated so as to change their attributes. If the jobs are retained in the hold queue q2, the attribute modification section 512e admits the modification of the attributes of the jobs. If the jobs are in the printer queues q5 and q6, and the pause queue q4, the modification of the attributes of the jobs is admitted on condition that the jobs are not being processed.

Description Paragraph (534):

As shown in FIG. 46, upon receipt of an instruction for the modification of the attribute information of a job, the attribute modification section 512e checks that the job information of the specified job is present in any queue (step S4301). If the job information is not present in any of the queues, an error notification is issued to the user, and then the processing is terminated (steps S4302 and S4303).

Description Paragraph (535):

On the other hand, if the job information is present, it is checked whether or not the job is being processed (step S4304). If the job is being processed, the attribute information of that job is deemed as being unchangeable (step S4309), and hence the processing is terminated.

Description Paragraph (536):

If the job is not being processed it is checked whether or not the job information of that job is retained in the hold queue q2 (step S4305). If the job information is held in the hold queue q2, the attribute information of that job is deemed as being changeable.

Description Paragraph (537):

If the job information of this job is retained in the printer queue q5 or q6, or the pause queue q4 (step S4306), it is further checked whether or not the job is being processed (step S4307).

Description Paragraph (539):

As a result of this, if the job was not previously in the processing state, the attribute information of that job is deemed as being changeable (step S4308). On the other hand, if the job was previously in the processing state, the modification of the attribute information of the job is not admitted (step S4309).

Description Paragraph (540):

If the job information is present in a queue other than the hold queue q2, the pause queue q4, and the printer queue q5 or q6, the modification of the attribute information of the job is not admitted (step S4309).

Description Paragraph (541):

In other words, when the job information is present in either the terminate queue q7 or q8, the processing of that job has already been completed. Further, when the job information is present in the spool queue q1, the acceptance of an AC job has not been completed yet. Moreover, when the job information is in the wait queue q4, the job is waiting for a password input, and therefore the attribute information of that job should not be changed.

Description Paragraph (542):

Through the execution of a series of the previously mentioned processing, it is possible to check whether or not the correction of the attribute information of a job is possible depending on the state of the job when an instruction for the modification of the attribute information of that job is accepted.

Description Paragraph (548):

(2c) whether or not the attribute information of a job which the second and later documents possess is specified. For (2c), when a one-job multidocument is used, each document possesses the attribute information of a job. On the assumption that the attribute information the first document possesses must be changed in order to change the attribute information of the job, it is checked whether or not the attribute information which the second and later documents have is specified.

Description Paragraph (553):

If the attribute information of a job of the first document is specified, it is further checked whether or not a document number (document_sequential_number) is specified.

Description Paragraph (579):

In the case of the one-job multidocument, the number of documents included in a job differs depending on jobs. For this reason, if an instruction for changing an attribute with the use of the default value is issued by specifying not a document but a job, a default value is set to the attribute information of a job which all documents included in the job possess.

CLAIMS:

1. A job processing system comprising a terminal equipment for issuing a job request by handling a plurality of documents as one job, and a job scheduling device which sequentially processes jobs by storing the jobs, received from the terminal equipment through a network, in a queue and sending a job execution section a processing request relating to a document specified by the job stored in the, queue, said terminal equipment comprising: attribute information adding means for adding information which specifies a job output method to a job request as attribute information of the job, and said job scheduling device comprising: attribute information setting means for acquiring attribute information included in the received job and sets the attribute information to information which specifies a job and a document; a queue for storing, as a job, a group of items of the information which specify a job and a document; and output result control means which, upon reference to the information items which specify a job and a document with respect to the job stored in the queue, controls the processing request issued to the job execution section in such a way that a specified number of copies of the job are output using the information which specifies a job output method.

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